# PROJECT DEVELOPMENT PHASE MODEL PERFORMANCE TESTING

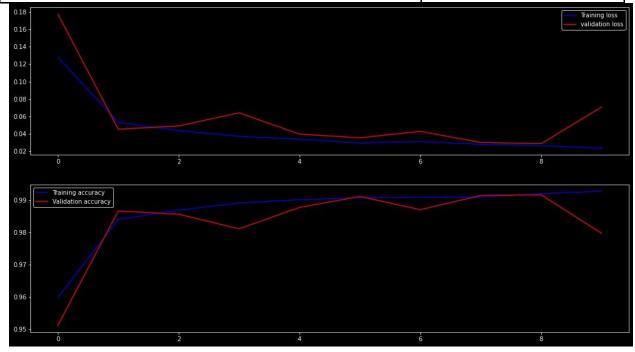
| DATE         | 16 NOVEMBER 2022                     |
|--------------|--------------------------------------|
| TEAM ID      | PNT2022TMID41466                     |
| PROJECT NAME | A NOVEL METHOD FOR HANDWRITTEN DIGIT |
|              | RECOGINITION SYSTEM                  |
| MAXIMUM      | 10 MARKS                             |
| MARKS        |                                      |

### **MODEL SUMMARY**

| Model: "sequential"                     |   |            |
|---|---|------------|
| Layer (type)                            | Output Shape                            | Param #    |
| conv2d (Conv2D)                         | (None, 26, 26, 64)                      | 640<br>640 |
| conv2d_1 (Conv2D)                       | (None, 24, 24, 32)                      | 18464      |
| flatten (Flatten)                       | (None, 18432)                           | 0          |
| dense (Dense)                           | (None, 10)                              | 184330     |
| ======================================= | ======================================= | ========   |
| Total params: 203,434                   |   |            |
| Trainable params: 203,434               |   |            |
| Non-trainable params: 0                 |   |            |

# **ACCURACY**

| CONTENT             | VALUE  |
|---------------------|--------|
| Training Accuracy   | 99.14% |
| Training Loss       | 2.70%  |
| Validation Accuracy | 97.76% |
| Validation Loss     | 10.36% |



#### **CONFUSION MATRIX**

| 0                  | 951 | 0    | 0    | 0    | 0             | 0             | 2   | 0    | 0   | 0    |
|--------------------|-----|------|------|------|---------------|---------------|-----|------|-----|------|
| 1                  | 0   | 1119 | 0    | 0    | 3             | 0             | 2   | 1    | 0   | 0    |
| 2 -                | 5   | 2    | 1020 | 0    | 6             | 0             | 21  | 9    | 0   | 0    |
| m -                | 2   | 6    | 11   | 1009 | 0             | 3             | 1   | 5    | 6   | 2    |
| Frue Values<br>5 4 | 0   | 0    | 0    | 0    | 936           | 0             | 0   | 0    | 0   | 1    |
| True \             | 12  | 1    | 1    | 1    | 1             | 888           | 13  | 0    | 1   | 3    |
| 9 -                | 1   | 1    | 0    | 0    | 2             | 1             | 916 | 0    | 0   | 0    |
| 7                  | 2   | 5    | 0    | 0    | 4             | 0             | 0   | 1012 | 1   | 2    |
| ω-                 | 7   | 1    | 0    | 0    | 0             | 0             | 3   | 0    | 966 | 0    |
| <b>б</b> -         | 0   | 0    | 0    | 0    | 30            | 0             | 0   | 1    | 0   | 1001 |
|                    | Ó   | i    | 2    | 3    | 4<br>Predicte | 5<br>d Values | 6   | 7    | 8   | ģ    |

## **CLASSIFICATION REPORT**

|              | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 9            | 1.00      | 0.97   | 0.98     | 980     |
| 1            | 0.99      | 0.99   | 0.99     | 1135    |
| 2            | 0.96      | 0.99   | 0.97     | 1032    |
| 3            | 0.97      | 1.00   | 0.98     | 1010    |
| 4            | 1.00      | 0.95   | 0.98     | 982     |
| 5            | 0.96      | 1.00   | 0.98     | 892     |
| 6            | 0.99      | 0.96   | 0.97     | 958     |
| 7            | 0.99      | 0.98   | 0.99     | 1028    |
| 8            | 0.99      | 0.99   | 0.99     | 974     |
| 9            | 0.97      | 0.99   | 0.98     | 1009    |
|              |           |        |          |         |
| accuracy     |           |        | 0.98     | 10000   |
| macro avg    | 0.98      | 0.98   | 0.98     | 10000   |
| weighted avg | 0.98      | 0.98   | 0.98     | 10000   |